REMARKS

This amendment is responsive to the Final Office Action dated December 1, 2009. Claims 1-6 and 8-18 have been cancelled, and new claims 19-37 have been added. *No new matter has been added.* Support for these amendments may be found variously throughout the disclosure, including original claims 1-18 and page 5, paragraph 4 through page 8, paragraph 1 of the Specification. Claims 19-37 remain pending in the application. Applicant respectfully requests consideration and allowance of the pending claims in light of the following remarks.

Claims 1-4, and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 4,913,525 to Asakura et al. ("Asakura") in view of U.S. Pat. No. 6,488,419 to Kato et al. ("Kato"), and further in view of U.S. Pat. No. 5,870,417 to Verdiell et al. ("Verdiell"); claims 5-6 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Asakura in view of Kato and Verdiell, and further in view of Mizuno et al., "100mW Kink-free Blue-violet Laser Diodes with Low Aspect Ratio," Proceedings of the 11th Sony Research Forum, 2001 ("Mizuno"); claims 8-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Asakura in view of Kato and Verdiell, and further in view of U.S. Pat. No. 7,027,469 to Sidorin ("Sidorin"); and claims 13-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Asakura, Kato, Verdiell, Mizuno, and Sidorin.

While not conceding the propriety of these rejections, Applicant submits that they are moot in view of the cancellation of claims 1-6 and 8-18, and thus requests that they be withdrawn.

New claims 19-37

New independent claim 19 recites: *[a]n external cavity type semiconductor laser, comprising:*

a semiconductor laser device having an activation layer;

a grating which receives a beam emitted from the semiconductor laser device; and

a window glass disposed between a beam emission surface of the semiconductor laser device and the grating, the beam emitted from the semiconductor laser device passing through the window glass;

wherein the window glass is arranged in either a first state or a second state,

wherein in the first state the window glass is nearly parallel with a first axis and not parallel with a second axis, and the angle between a surface of the window glass and the second axis is in the range of 5° to 12°,

wherein in the second state the window glass is nearly parallel with the second axis and not parallel with the first axis, and the angle between the surface of the window glass and the first axis is in the range of 1° to 1.6°,

wherein the first axis is nearly perpendicular to a plane that is nearly parallel with a boundary surface of the activation layer, and

wherein the second axis is nearly parallel with the beam emission surface of the semiconductor laser device and nearly perpendicular to the first axis.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974); *see also* MPEP 2143.03.

The above cited references, either alone or in any permissible combination, fail to disclose or suggest the features recited by new claim 19. Specifically, the cited references, either alone or in any permissible combination, fail to disclose or suggest "*the window glass is arranged in either a first state or a second state, wherein in the first state the window glass is nearly parallel with a first axis and not parallel with a second axis, and the angle between a surface of the window glass and the second axis is in the range of 5° to 12°...*

wherein the first axis is nearly perpendicular to a plane that is nearly parallel with a boundary surface of the activation layer, and

wherein the second axis is nearly parallel with the beam emission surface of the semiconductor laser device and nearly perpendicular to the first axis."

Additionally, the cited references, either alone or in any permissible combination, fail to disclose or suggest "*wherein in the second state the window glass is nearly parallel with the second axis and not parallel with the first axis, and the angle between the surface of the window glass and the first axis is in the range of 1° to 1.6°[.]*"

Asakura discloses a frequency stabilized light source including a semiconductor laser chip, a lens, a finite Fourier diffraction grating and an anti-reflection coating. (Asakura, col. 3, lines 4-6). A light beam coming out of one facet of the semiconductor laser chip is collimated by the lens, and is incident on the Fourier grating. (Asakura, col. 3, lines 6-9). The incident light is dispersed depending on its wavelengths, and the light with a specific wavelength determined from the angle of the grating is fed back to the active layer of the semiconductor laser chip. (Asakura, col. 3, lines 9-13). The semiconductor laser chip oscillates stably at the wavelength of the feedback light, and emits a frequency stabilized output light from the other facet thereof. (Asakura, col. 3, lines 13-16).

However, Asakura fails to disclose or suggest "*a window glass disposed between a beam emission surface of the semiconductor laser device and the grating, the beam emitted from the semiconductor laser device passing through the window glass[.]*"

Consequently, Asakura also fails to disclose or suggest "*wherein the window glass is arranged in either a first state or a second state,*

wherein in the first state the window glass is nearly parallel with a first axis and not parallel with a second axis, and the angle between a surface of the window glass and the second axis is in the range of 5° to 12°,

wherein in the second state the window glass is nearly parallel with the second axis and not parallel with the first axis, and the angle between the surface of the window glass and the first axis is in the range of 1° to 1.6°[.]"

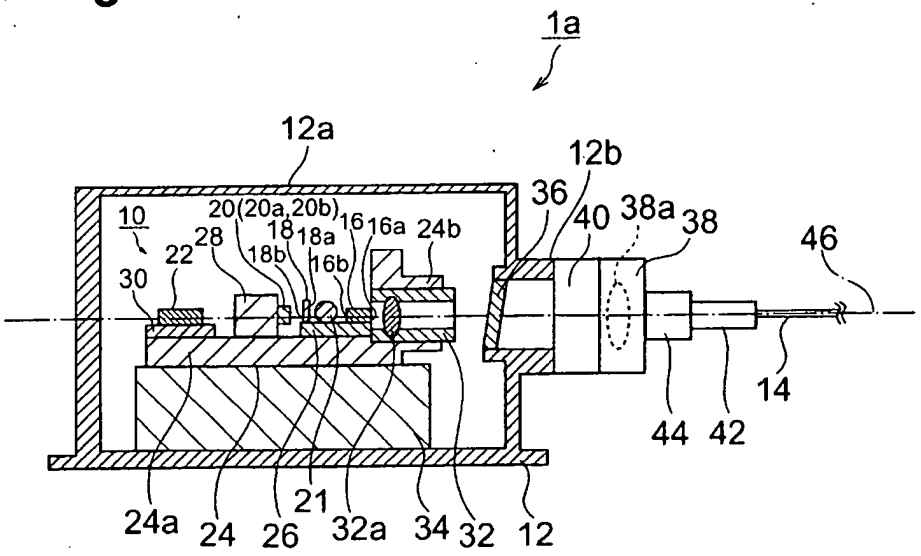
The Office Action relies on Kato, alleging that Kato discloses hermetic glass 36 "in the second state" or, in other words, "*nearly parallel with the second axis and not parallel with the first axis...*

wherein the first axis is nearly perpendicular to a plane that is nearly parallel with a boundary surface of the activation layer, and

wherein the second axis is nearly parallel with the beam emission surface of the semiconductor laser device and nearly perpendicular to the first axis[.]" (Office Action, p. 4, ll. 15-17, see also Kato, FIG. 2).

However, due to it's two dimensional nature, the cross-sectional view of Kato's semiconductor laser module shown in Kato FIG. 2, reproduced below, does not and cannot show the orientation of a *surface* of hermetic glass 36 with respect to a first or second axis, but only shows the orientation of a two-dimensional *cross-section* of the hermetic glass 36.

Fig.2



Kato, FIG. 2

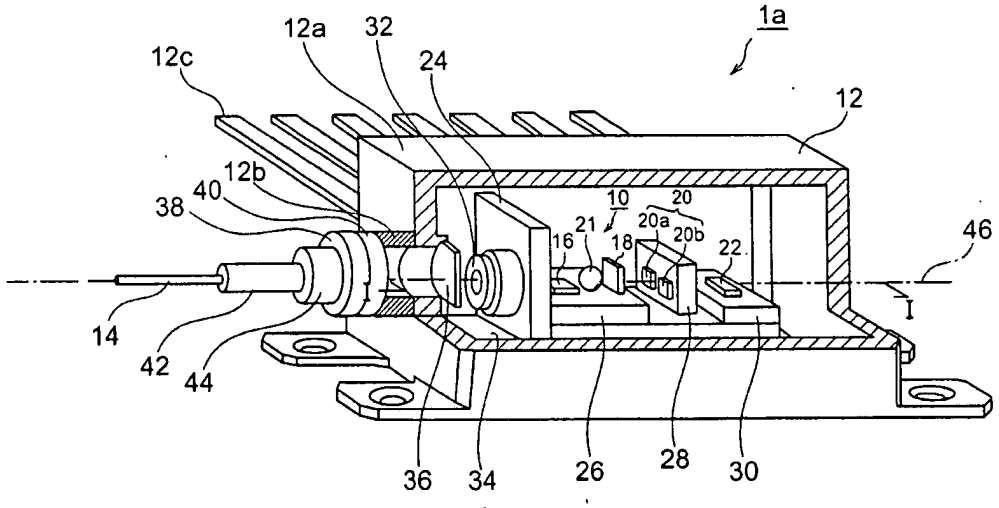
Thus, Kato does not disclose or suggest "*wherein the window glass is arranged in <u>either</u> a first state <u>or</u> a second state,*

wherein in the first state the window glass is nearly parallel with a first axis and not parallel with a second axis...

wherein in the second state the window glass is nearly parallel with the second axis and not parallel with the first axis[.]"

Furthermore, the Kato reference is inconsistent in its disclosure of the orientation of hermetic glass 36. Kato FIG. 2 is not independent from Kato FIG. 1, reproduced below, but is described as "a cross-sectional view taken along a line I–I of FIG. 1 to show the principal part of the semiconductor laser module[.]" (Kato, col. 6, ll. 13-15). Contrary to the assertions of the Office Action, Kato FIG. 1 appears to disclose hermetic glass 36 at an orientation nearly orthogonal to the predetermined axis 46 and nearly parallel to the beam emission surface of semiconductor laser 16.

Fig.1



Kato, FIG. 1

Thus, it cannot be maintained that Kato discloses a "*window glass [] arranged in either a first state or a second state,*

wherein in the first state the window glass is nearly parallel with a first axis and not parallel with a second axis...

wherein in the second state the window glass is nearly parallel with the second axis and not parallel with the first axis[.]"

Moreover, the cited references Asakura, Kato, Verdiell, either alone or in any permissible combination, fail to disclose or suggest "*wherein the window glass is arranged in either a first state or a second state,*

wherein in the first state... the angle between a surface of the window glass and the second axis is in the range of 5° to 12°[.]"

The Office Action relies on Verdiell, alleging that Verdiell discloses "an angle of 5° to 12° with the second axis in order to prevent optical feedback into the optical cavity." (Office Action, p. 5, ll. 9-10).

Verdiell discloses a "[w]aveguide source 30 compris[ing] gain element 32 having a pump stripe 38 that has a portion that is either curved or angled to exit facet 36 in order to prevent optical feedback into the optical cavity of gain element 32." (Verdiell, col. 5, ll. 8-11). Verdiell further discloses, "[t]he exit facet reflectivity is reduced by angling a portion 39 of pump stripe relative to exit facet 36, such as within the range of about 5° to 15° from the exit facet normal, so that any light reflected from exit facet 36 is not coupled back into the optical cavity of gain element 32 as represented by pumping stripe 38." (Verdiell, col. 5, ll. 17-22).

However, Verdiell clearly does not disclose "an angle of 5° to 12° with the second axis[,]" as is alleged in the Office Action (Office Action, p. 5, ll. 9-10), because the second axis is defined in claim 19 as being "*nearly parallel with the beam emission surface of the semiconductor laser device[.]*" Thus, exit facet 36, as a beam emission surface, cannot be both parallel to the second axis while also at an angle of 5° to 12° with the second axis.

Additionally, the cited references Asakura, Kato, Verdiell, either alone or in any permissible combination, fail to disclose or suggest "*wherein the window glass is arranged in either a first state or a second state...*

wherein in the second state... the angle between the surface of the window glass and the first axis is in the range of 1° to 1.6°[.]"

The Office Action admits that the combined cited references fail to disclose this feature. However, quoting language from *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955), the Office Action asserts this feature is not distinguishable, stating "where the general conditions of a claim are disclosed in the prior art, discovering workable ranges only involves routine skill in the art." (Office Action, p. 5, ll. 20-21).

However, this assertion fails for at least two reasons. First, as shown above, the cited references fail to disclose or suggest the general conditions of claim 19. Specifically, as shown above, the cited references fail to disclose or suggest a "*window glass [] arranged in <u>either</u> a first state <u>or</u> a second state,*

wherein in the first state the window glass is nearly parallel with a first axis and <u>not</u> parallel with a second axis...

wherein in the second state the window glass is nearly parallel with the second axis and <u>not</u> parallel with the first axis[.]"

Second, before the determination of the optimum or workable ranges of a variable may be characterized as routine experimentation, that variable must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); *see also* MPEP 2144.05 II(B).

While Kato FIG. 2 arguably discloses the orientation of a *cross-section* of hermetic glass 36, Kato does not make any mention of the significance of "*the angle between the surface of the window glass and the first axis[.]*" Thus, Kato fails to recognize "*the angle between the surface of the window glass and the first axis*" to be a result-effective variable.

Consequently, claim 19 cannot be rejected on the assertion that the recited feature of the "*angle between the surface of the window glass and the first axis [being] in the range of 1° to 1.6°*" would have been obvious to one or ordinary skill in the art as a mere discovery of a workable range.

Because the cited references fail to disclose all features recited by claim 19, claim 19 is believed to be in condition for allowance.

For reasons similar to those given above, independent claim 32 is also believed to be in condition for allowance.

New dependent claims 20-31 and 33-37, which depend from claims 19 and 32, respectively, are also believed to be in condition for allowance for their incorporation of the features in the independent claim as well as for their separately recited patentably distinct features. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) (If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious.)

CONCLUSION

In view of the foregoing arguments, all claims are believed to be in condition for allowance. If any further issues remain, the Examiner is invited to telephone the undersigned to resolve them.

This response is believed to be a complete response to the Office Action. However, Applicant reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers. Further, for any instances in which the Examiner took Official Notice in the Office Action, Applicant expressly do not acquiesce to the taking of Official Notice, and respectfully request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 C.F.R. § 1.104(d)(2) and MPEP § 2144.03.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 18-0013, under Order No. SON-3163 from which the undersigned is authorized to draw.

Dated: January 7, 2010

Respectfully submitted,

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